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Epidural and wound infiltration analgesia in patients: A comparative study

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Abstract

Background: The present study was conducted to compare epidural and wound infiltration analgesia in study group.

Materials & Methods: The present study was conducted in the department of Anesthesia. It comprised of 64 patients aged 30–70 years belonging to the American society of Anesthesiologists physical status 1 and 2. Patients were divided into 2 groups of 32 each. Group I were those in which epidural infiltration was given and group II were those in which wound infiltration was done. Patients were evaluated for visual analogue score at rest (VASR) and at deep breathing (VASDB) post-operatively.

Results: There was non-significant difference ($P > 0.05$) in VAS score recorded in both groups at 10 minutes, 20 minutes, 60 minutes, 90 minutes, 120 minutes and 180 minutes at rest whereas it was significant at deep breath ($P < 0.05$). In group I 1 and in group II 2 had side effects.

Conclusion: Continuous epidural infusion is better as compared to Continuous wound infiltration. Side effects were also less in continuous epidural infusion group.

Keywords: Continuous epidural infusion, VAS, wound infiltration

Introduction

Microdiscectomy is performed in symptomatic patients whose disabling pain and functional impairment have failed to respond to adequate trials of conservative treatment.¹ Postoperative pain derived from this minimally invasive procedure can further cause discomfort and if persistent, may lead to chronic pain. Pain after gynaecological surgeries is often undertreated as it is assumed to be associated with lower pain intensity. This under treatment of pain leads to patient dissatisfaction and other complications^[2].

Postoperative pain is likely to impair respiratory effort by restricting thoracic and abdominal breathing, reducing tidal volume and vital capacity, and may also cause respiratory and cardiovascular depression and cognitive, gastrointestinal and neuroendocrine dysfunction. These changes will probably negatively interfere with the postoperative recovery course^[3].

The patient mobility, length of hospital stay and recovery can be hastened by using effective analgesic methods. Different modalities of pain management have been effectively used and compared with each other. Among these modalities, regional anaesthetic techniques have proven to be superior in providing satisfactory pain control^[4].

Continuous wound infiltration (CWI) is an analgesic technique to administer local anesthetics directly into the surgical wound at a constant speed, through a multi-holed catheter that is placed by the surgeon at the end of the surgery. epidural infusion with local anaesthetics could provide adequate analgesia, it is also associated with complications such as hypotension, motor blockade, epidural haematoma and epidural abscess^[5]. The present study was conducted to compare epidural and wound infiltration anesthesia in study group.

Materials & Methods

The present study was conducted in the department of Anesthesia. It comprised of 64 patients aged 30–70 years belonging to the American society of Anesthesiologists physical status 1 and 2. They were informed regarding the purpose of the study and written consent was obtained. Information such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 32 each. Group I were those in which epidural infiltration was given and group II were those in which wound infiltration was done. General anaesthesia was administered according to standard protocol. At the end of surgery, both groups received 10 mL bolus of 0.2% ropivacaine followed by infusion at 6 mL/h through the respective catheters.

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Patients were evaluated for visual analogue score at rest (VASR) and at deep breathing (VASDB) post-operatively. They were also evaluated for side effects. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

Results

Table 1: Distribution of patients

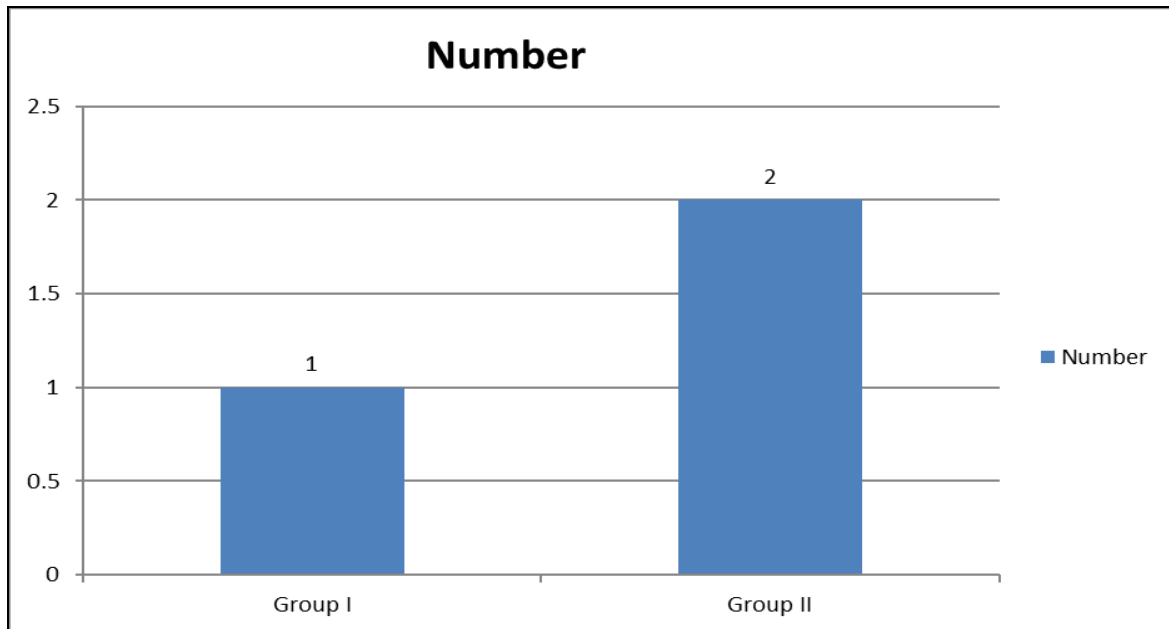
Group	Group I (epidural infiltration)	Group II (Wound infiltration)
Number	32	32

Table 1 shows that group I were those in which epidural infiltration was given and group II were those in which wound infiltration was done.

Table 2: Comparison of VAS at rest and at deep breathing

Time (Mins)	At rest		P value	At deep breathing		P value
	Group I	Group II		Group I	Group II	
10	4.2	4.4	0.41	4.68	5.2	0.01
30	4.0	4.2	0.56	4.62	4.5	0.3
60	3.7	3.6	0.41	4.21	5.0	0.02
90	3.4	3.5	0.93	3.24	4.2	0.05
120	3.3	3.2	0.51	3.1	4.0	0.01
180	3.1	3.0	0.54	2.8	3.6	0.05

Table 2 shows that there was non- significant difference ($P > 0.05$) in VAS score recorded in both groups at 10 minutes, 20 minutes, 60 minutes, 90 minutes, 120 minutes and 180 minutes at rest whereas it was significant at deep breadth ($P < 0.05$).



Graph I: Side effects in both groups

Graph I shows that in group I 1 and in group II 2 had side effects.

Discussion

It was hypothesized that administration of local anaesthetics in the subcutaneous plane at the surgical site would result in the spread of drug further, thus blocking nociceptive inputs. Owing to lack of prospective trials comparing the efficacy of the three modalities, we designed this study with the aim of comparing the quality of post-operative pain relief that can be achieved with three techniques, namely, continuous epidural infusion (CEI), continuous wound infiltration (CWI) and intravenous (IV) patient-controlled analgesia (PCA) [6]. Local wound infiltration catheter has been used frequently in the management of post-operative analgesia. It is found to be an effective method for early recovery of bowel function, reduced opioid consumption and home readiness. It has also been shown that wound infusion of local anaesthetics at the surgical site has an anti-inflammatory effect [7]. The present study was conducted to compare epidural and wound infiltration anesthesia in study group. In this study, we included 64 patients divided into 2 groups. Group I were those in which epidural infiltration was given

and group II were those in which wound infiltration was done. Singh *et al.* [8] conducted a prospective randomized controlled trial included 102 patients planned for TAH who were randomized into either Group E (CEI) or Group L (CWI). The catheter (epidural/wound infiltration) was inserted in Group E before induction) and Group L at the end of surgery. The mean VASR between two groups were comparable up to 8 h. Group E showed significantly reduced VASR compared to Group L at 12 h (2.32 ± 0.59 vs 2.62 ± 0.67 , $P = 0.019$) and 24 h (2.30 ± 0.58 vs 2.62 ± 0.57 , $P = 0.006$). Group E showed significantly reduced VASDB compared to Group L at 5 min and from 4 to 24 h. Total morphine consumption, side effects and patient satisfaction were comparable. We found that there was non- significant difference ($P > 0.05$) in VAS score recorded in both groups at 10 minutes, 20 minutes, 60 minutes, 90 minutes, 120 minutes and 180 minutes at rest whereas it was significant at deep breadth ($P < 0.05$). In group I 1 and in group II 2 had side effects. Ammanickal *et al.* [9] conducted a randomized control trial was conducted on 75 patients of American Society of Anesthesiologists' physical status I or II undergoing microdiscectomy. Patients in all the three groups received morphine 1 mg IV, with a lockout period of 10 min after

each bolus, and the maximum allowed dose was 15 mg/5 h postoperatively. Patients in Group A received CWI with 0.25% levobupivacaine 20 mL as bolus after extubation followed by infusion at 5 mL/h. Group B received CEI with 0.25% levobupivacaine at 5 mL/h. Patients in Group C received intravenous (IV) morphine by PCA pump only. The primary end points were static and dynamic visual analogue scores (VAS) and postoperative pain scores. Group A showed greater analgesic effects at 12 h ($P < 0.02$), 24 h ($P < 0.03$), 36 h ($P < 0.008$) and 48 h ($P < 0.007$) when compared to the other two techniques, as pain scores were less in group A as compared to group B and C. The requirement of postoperative intravenous morphine (mg) was 18 ± 12.82 , 22.92 ± 9.88 , 41.56 ± 8.83 for groups A, B and C after 48 h ($P < 0.001$).

Conclusion

Authors found that continuous epidural infusion is better as compared to Continuous wound infiltration. Side effects were also less in continuous epidural infusion group.

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